

# Dell Latitude 5420 Rugged

## Setup and Specifications Guide



## Notes, cautions, and warnings

 | **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 | **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 | **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# Chassis Overview

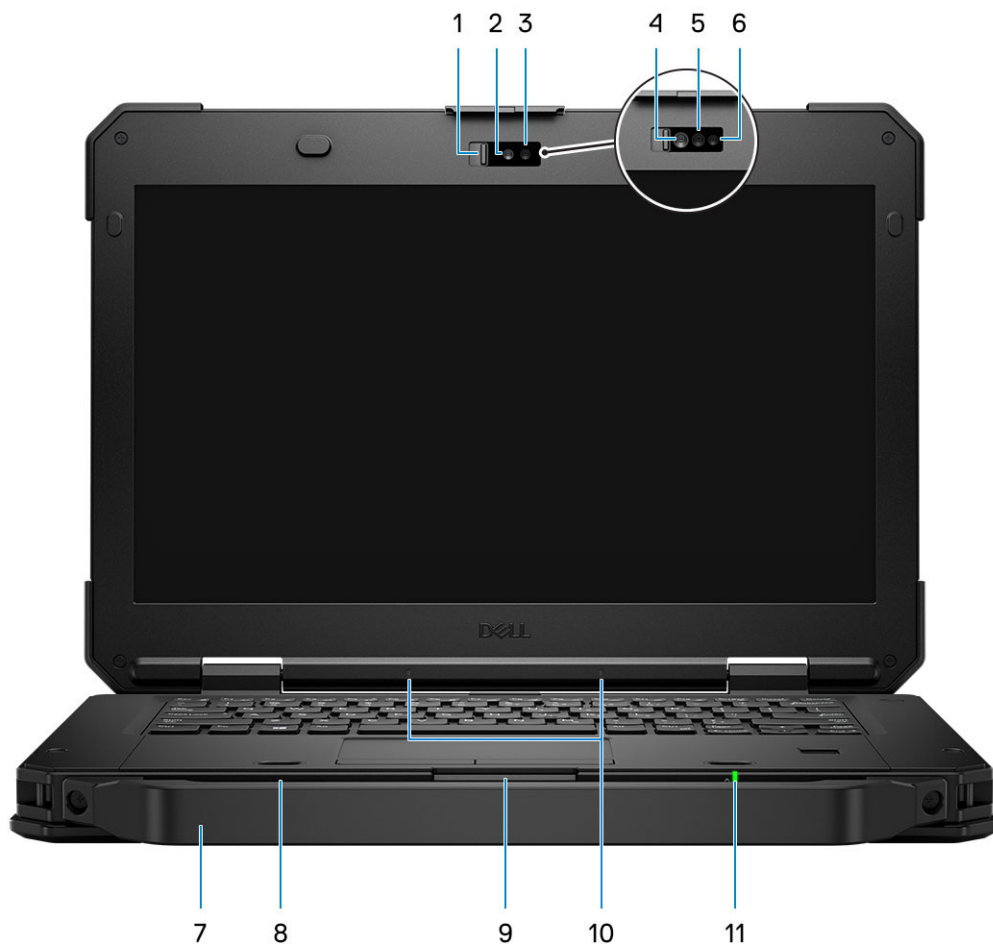
This chapter illustrates the multiple chassis views along with the ports and connectors called out.



Topics:

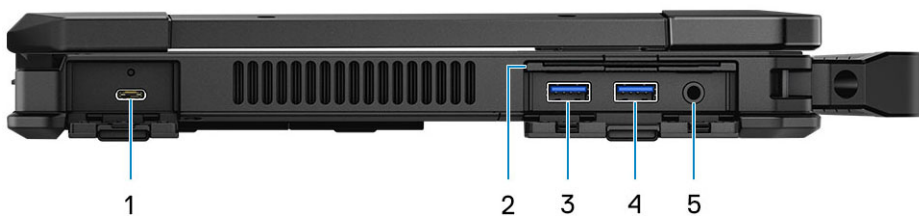
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- [Back View](#)

# Front View



- |    |                       |    |                      |
|----|-----------------------|----|----------------------|
| 1  | Camera Shutter        | 2  | RGB Camera           |
| 3  | RGB Camera status LED | 4  | IR Camera            |
| 5  | IR Emitter            | 6  | IR Camera status LED |
| 7  | Handle                | 8  | Speakers             |
| 9  | LCD Latch             | 10 | Microphone array     |
| 11 | Battery Status LED    |    |                      |

# Left Side View



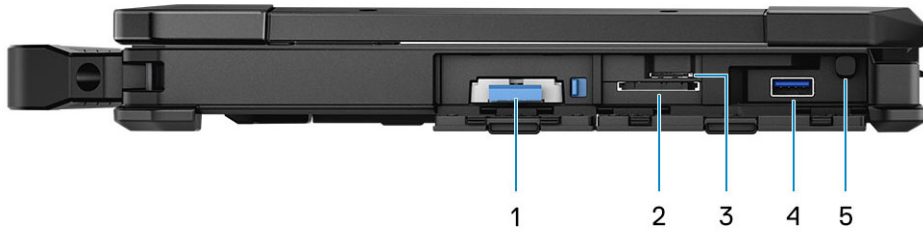
- |   |                                                   |   |                   |
|---|---------------------------------------------------|---|-------------------|
| 1 | USB 3.1 Gen 2 Type-C Port with Power Delivery(PD) | 2 | Smart Card Reader |
|---|---------------------------------------------------|---|-------------------|

3 USB 3.1 Gen 1 Type-A Port(with PowerShare)

4 USB 3.1 Gen 1 Type-A Port

5 3.5 mm Universal audio port

## Right Side View



1 SSD

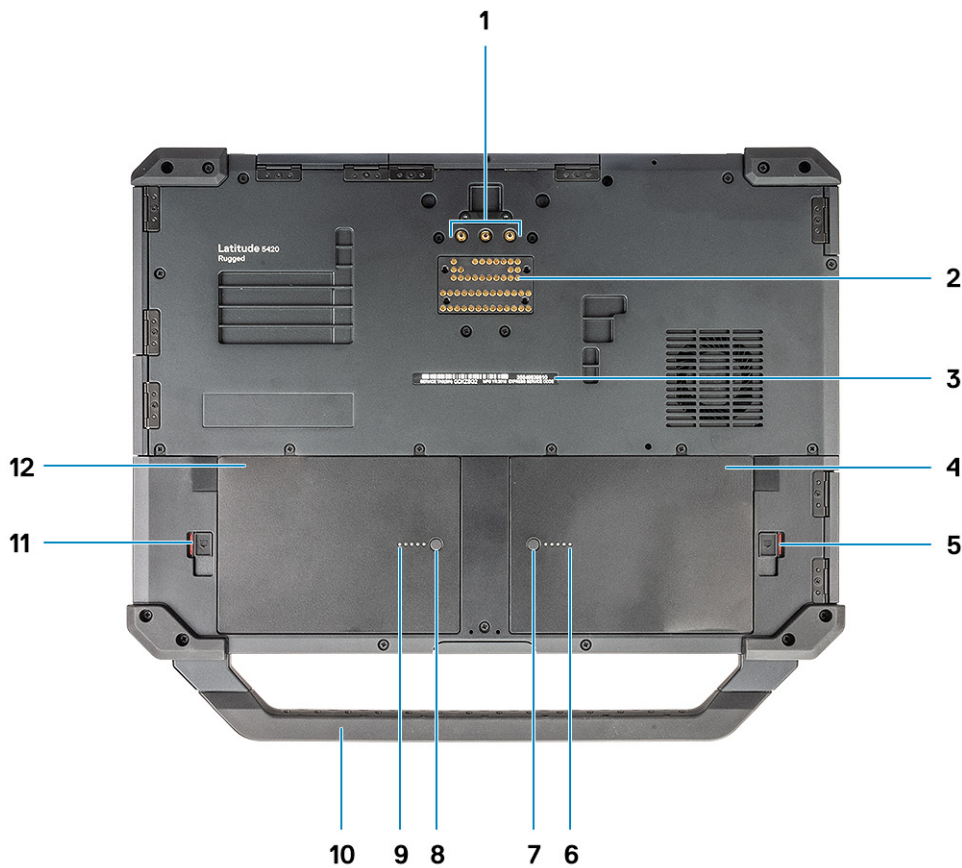
2 SD Card Reader

3 SIM Card Slot

4 USB 3.1 Gen 1 Type-A Port (recessed USB, supports mini USB connection with doors shut)

5 Stylus slot

## Bottom View



1 Radio frequency pass-through connectors

2 Docking port

- 3 Service tag sticker
- 5 Battery -1 Latch
- 7 Battery -1 charge indicator button
- 9 Battery -2 charge indicator LED
- 11 Battery -2 Latch
- 4 Battery -1
- 6 Battery -1 charge indicator LED
- 8 Battery -2 charge indicator button
- 10 Handle
- 12 Battery -2 (Optional)

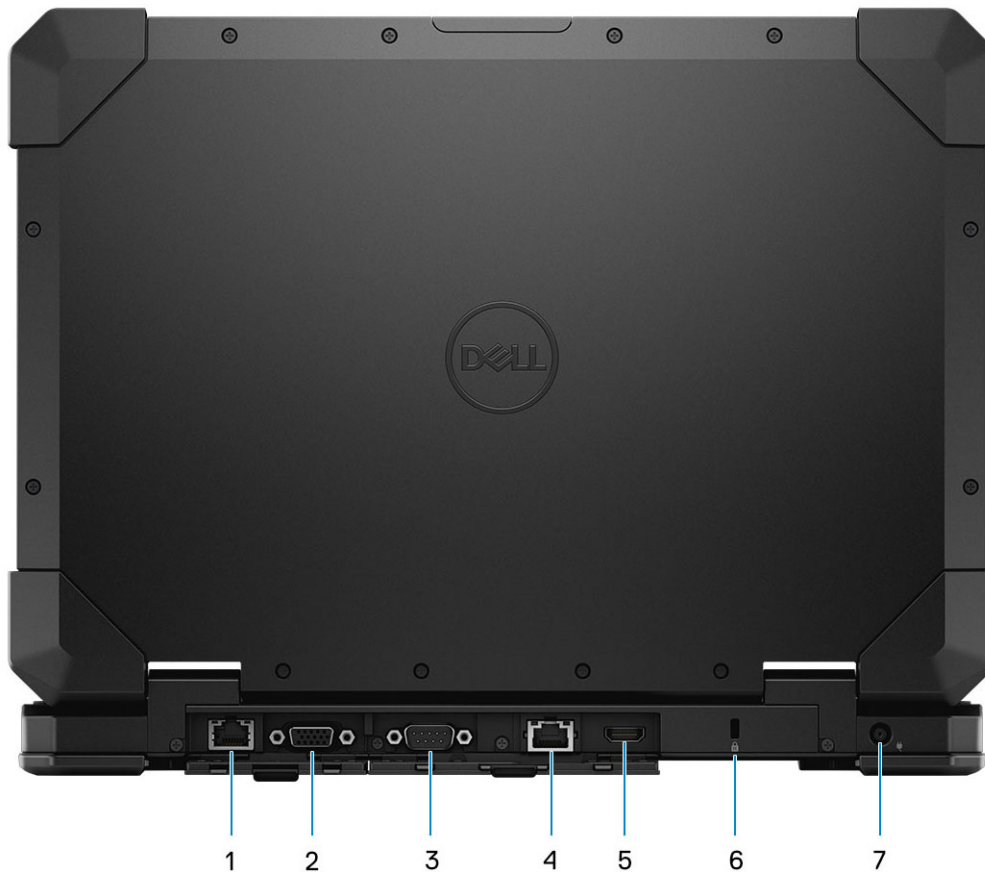
## Top view



- 1 Power button
- 2 Keyboard
- 3 Touch pad
- 4 Fingerprint reader (optional)



# Back View



- |   |                                                |   |                                           |
|---|------------------------------------------------|---|-------------------------------------------|
| 1 | Ethernet Port (Optional Rear configurable I/O) | 2 | VGA Port (Optional Rear configurable I/O) |
| 3 | Serial Port                                    | 4 | Ethernet Port Port                        |
| 5 | HDMI 2.0 Port                                  | 6 | T-Bar Lock Slot                           |
| 7 | DC-In(Power) Port                              |   |                                           |

**⚠ CAUTION: EXPLOSION HAZARD**—External connections (power adapter port, HDMI port, USB ports, RJ45 port, serial ports, audio port, Smart Card reader slot, SD card reader slot, Express Card reader slot, PC card reader slot, SIM card slot) should not be used in a hazardous location.

**⚠ WARNING:** Do not block, push objects into, or allow dust to accumulate in the air vents. Do not store your Dell computer in a low-airflow environment, such as a closed briefcase, while it is running. Restricting the airflow can damage the computer. The computer turns on the fan when the computer gets hot. Fan noise is normal and does not indicate a problem with the fan or the computer.

# System information

This chapter provides detailed product specifications and the comparison with its predecessors.

Topics:

- [Product Comparison](#)
- [Technical specifications](#)

## Product Comparison

**Table 1. Product comparison with predecessor model**

	<b>Latitude 5414</b>	<b>Latitude 5420 Rugged</b>
Processor	<ul style="list-style-type: none"> <li>• 6th Generation Intel Sky Lake (15 W) Dual Core i3/i5/i7</li> </ul>	<ul style="list-style-type: none"> <li>• 6th Generation Intel Sky Lake (15 W) Dual Core i5</li> <li>• 7th Generation Intel Kaby Lake U (15 W) Quad Core i5/i7, Dual Core i3</li> <li>• 8th Generation Intel Kaby Lake U (15 W) Quad Core i5/i7</li> </ul>
Chipset	Intel Sky Lake chipset (integrated with the processor)	Intel Kaby Lake / Sky Lake (integrated with the processor)
Memory	DDR4 2133 MHz; 2 SoDIMM slots supporting up to 32 GB	<ul style="list-style-type: none"> <li>• DDR4 2133 MHz; 2 SoDIMM slots supporting up to 32 GB (SkyLake U)</li> <li>• DDR4 2400 MHz; 2 SoDIMM slots supporting up to 32 GB (KabyLake U)</li> </ul>
Storage	<ul style="list-style-type: none"> <li>• None</li> <li>• 2.5" HDD: Up to 1 TB, hybrid, OPAL SED options</li> <li>• SSD M.2 2280 SATA: Up to 512 GB, OPAL SED options</li> <li>• 5.25" ODD (Optional)</li> </ul>	<ul style="list-style-type: none"> <li>• SSD M.2 2280 PCIe: Up to 1 TB, FIPS, OPAL, SED options</li> <li>• SSD M.2 2280 SATA: Up to 1 TB, FIPS, OPAL, SED options</li> </ul>
Graphics	<p><b>Integrated</b></p> <p>Intel HD 520 Graphics (Integrated in Intel 6th generation processors OR Radeon R7 M360 (Discrete)</p>	<p><b>Integrated</b></p> <ul style="list-style-type: none"> <li>• Intel HD Graphics 620 (Integrated in Intel 7th generation processors)</li> <li>• Intel UHD Graphics 620 (Integrated in Intel 8th generation processors)</li> <li>• Intel HD 520 Graphics (Integrated in Intel 6th generation processors)</li> </ul> <p><b>Discrete</b></p> <ul style="list-style-type: none"> <li>• AMD Radeon 540, 2 GB GDDR5</li> <li>• AMD Radeon RX540, 4 GB GDDR5</li> </ul>
Audio	Realtek ALC3235 Controller	Waves MaxxAudio 7.5

	Latitude 5414	Latitude 5420 Rugged
Communication	<ul style="list-style-type: none"> <li>Integrated Intel i219 10/100/1000 Mb/s Ethernet</li> <li>Wi-Fi 802.11a/b/g/n/ac with Bluetooth 4.2</li> <li>WWAN 4G LTE Full Mini Card (optional)</li> <li>Optional dedicated u-blox NEO-M8 GPS card</li> </ul>	<ul style="list-style-type: none"> <li>Integrated Intel i219 10/100/1000 Mb/s Ethernet</li> <li>Wi-Fi 802.11a/b/g/n/ac with Bluetooth 4.2</li> <li>WWAN 4G LTE Full Mini Card (optional)</li> <li>Bluetooth 4.2</li> <li>Optional dedicated u-blox NEO-M8 GPS card</li> </ul>
I/O connectors	<ul style="list-style-type: none"> <li>Three USB 3.1 ports(One with PowerShare)</li> <li>One USB 2.0</li> <li>HDMI 1.4</li> <li>VGA Port</li> <li>Two RJ-45 NIC ports</li> <li>Two RS-232 Serial ports</li> <li>One microphone/stereo headphone/speakers connector</li> <li>one micro-SIM slot with security feature</li> </ul>	<ul style="list-style-type: none"> <li>Four USB 3.1 Gen 1 ports (One with PowerShare and Power on/Wake-up support)</li> <li>HDMI 2.0</li> <li>One USB 3.2 Gen 2 Type-C port(Supports charging)</li> <li>Universal audio jack (Global Headset Jack + mic phone in + line in support)</li> <li>RJ-45 connector</li> <li>Serial RS-232 port</li> </ul> <p>Rear I/O space can be configured with RJ-45 along with following options:</p> <ul style="list-style-type: none"> <li>Blank - no IO, blank bezel (FACTORY DEFAULT)</li> <li>Serial RS-232</li> <li>VGA or</li> <li>DisplayPort</li> </ul>
Operating system	<ul style="list-style-type: none"> <li>Windows 10 Pro 64 bit</li> <li>Windows 10 Home 64 bit</li> </ul>	<ul style="list-style-type: none"> <li>Windows 10 Pro 64 bit</li> <li>Windows 10 Enterprise (64 bit)</li> <li>Windows 7 via Dell CFI †</li> </ul>
BIOS	UEFI BIOS	UEFI BIOS
AC adapter	<ul style="list-style-type: none"> <li>65 W adapter, 7.4 mm barrel</li> <li>65 W BFR/PVC halogen free adapter, 7.4 mm barrel</li> <li>90 W adapter, 7.4 mm barrel</li> </ul>	<ul style="list-style-type: none"> <li>19.5 V @ 130 W &amp; 90 W adapters through 7.4 mm DC-IN jack</li> <li>USB Type-C with PD</li> </ul>
Battery	<ul style="list-style-type: none"> <li>6 Cell 65 Whr</li> <li>9 Cell 91 Whr</li> </ul>	<p>Option to have two or one:</p> <ul style="list-style-type: none"> <li>3 Cell 51 Whr ExpressCharge capable battery</li> <li>3 Cell 51 Whr Battery (Long-Life Cycle)</li> </ul>
Weight (Pounds/Kilogram)	7.8 / 3.54	4.9 / 2.2 (without handle and bumpers)

## Technical specifications

**NOTE:** Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.

# System information

**Table 2. System Information**

## System chipset information

Chipset	<ul style="list-style-type: none"><li>Intel Kaby Lake U Dual Core (integrated with processor)</li><li>Intel Kaby Lake U Quad Core(integrated with processor)</li><li>Intel Sky Lake U Dual Core (integrated with processor)</li></ul>
DRAM bus width	64-bit
Flash EEPROM	SP1 128 Mbits
PCIe bus	100 Mhz
External bus frequency	DMI 3.0-8GT/s

## Base

**Table 3. Base configurations**

### Base

- Intel Dual-Core i3-7130U Kaby Lake processor, Intel HD 620 UMA graphics, TPM
- Intel Quad-Core i5-8350U Kaby Lake processor, Intel UHD 620 UMA graphics, TPM, vPro
- Intel Quad-Core i5-8350U Kaby Lake processor, AMD Radeon 540(2GB/64-Bit) discrete graphics, TPM, vPro
- Intel Quad-Core i5-8350U Kaby Lake processor, AMD Radeon RX540(4GB/128-Bit) discrete graphics, TPM, vPro
- Intel Quad-Core i7-8650U Kaby Lake processor, AMD Radeon 540(2GB/64-Bit) discrete graphics, TPM, vPro
- Intel Quad-Core i7-8650U Kaby Lake processor, AMD Radeon RX540(4GB/128-Bit) discrete graphics, TPM, vPro
- Intel Dual-Core i5-6300U Sky Lake processor, Intel HD 520 UMA graphics, TPM

## Processor

**NOTE:** Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region/country.

**Table 4. Processor specifications**

Type	UMA Graphics
Intel Dual-Core i3-7130U Kaby Lake processor, Cache: 3 MB / # of Thread (T): 4 / Base Frequency : 2.7 GHz / Thermal Design Power (TDP): 15 W)	Intel HD Graphics 620
Intel Quad-Core i5-8350U Kaby Lake processor (6 MB / 8T / 1.7 GHz / 15 W)	Intel UHD Graphics 620

Type	UMA Graphics
Intel Quad-Core i7-8650U Kaby Lake processor (8 MB / 8T / 1.9 GHz / 15 W)	Intel UHD Graphics 620
Intel Dual-Core i5-6300U Sky Lake processor (3MB / 4T / 2.4 Ghz / 15 W)	Intel HD Graphics 520

## Memory

**Table 5. Memory specifications**

Memory configuration	
Minimum memory configuration	8 GB
Maximum memory configuration	32 GB
Number of slots	Two DDR4 SODIMM slots
Maximum memory supported per slot	16 GB
Memory options	<ul style="list-style-type: none"> <li>• 8 GB - 2 x 4 GB</li> <li>• 16 GB - 2 x 8 GB</li> <li>• 32 GB - 2 x 16 GB</li> </ul>
Type	DDR4 SDRAM (Non-ECC memory only)
Speed	<ul style="list-style-type: none"> <li>• 2400 MHz (Kaby Lake processor)</li> <li>• 2133 MHz (Sky Lake procesor)</li> </ul>

## System board connectors

**Table 6. Internal M.2 System board connectors**

Sockets	Options
M.2 (Socket 1, Key A)	Wireless Local Area Network (WLAN) / Wireless Gigabit Alliance (WiGig)
M.2 (Socket 3, Key M)	SATA / PCIe x 2 or x 4 SSD
M.2 (Socket 2, Key B)	SSD / Wireless Wide Area Network (WWAN)

# Storage

**Table 7. Storage specifications**

Type	Form factor	Interface	Security option	Capacity
Primary Storage ( SSD, FIPS, SED, Opal)		M.2 2280 SSD PCIe x4	FIPS, SED, Opal	<ul style="list-style-type: none"><li>128 GB</li><li>256 GB</li><li>512 GB</li><li>1 TB</li><li>2 TB</li><li>256 GB / 512GB FIPS 140-2 compliant SED</li><li>1TB OPAL SED</li></ul>

## Media card-reader

**Table 8. Media-card reader specifications**

### SD card reader specifications

Type	One SD-card slot
Supported cards	<ul style="list-style-type: none"><li>SD</li><li>SDHC</li><li>SDXC</li></ul>

## External Ports and connectors

**Table 9. External Ports and connectors**

Ports	Specifications
USB	<ul style="list-style-type: none"><li>One USB 3.1 Gen 1 Type-A port with Power on/Wake-up support</li><li>Two USB 3.1 Gen 1 Type-A port</li><li>One USB 3.2 Gen 1 Type-C port with PowerShare</li></ul>
Security	T-Bar Slot
Docking port	<ul style="list-style-type: none"><li>USB Type-C Monitor Stand/Dock</li><li>Latitude USB Type-C Dock</li><li>Dell Rugged Family Pogo Dock (backward compatible with Gen 2)</li></ul>
Audio	<ul style="list-style-type: none"><li>Universal audio jack (Global Headset Jack + mic phone in + line in support)</li></ul>

Ports	Specifications
	<ul style="list-style-type: none"> <li>No / Noise reduction dual array microphones</li> </ul>
Video	<ul style="list-style-type: none"> <li>HDMI 2.0</li> </ul>
Network adapter	One RJ-45 connector
Serial port	One legacy Serial RS-232 port
Rear Configurable I/O Space	<ul style="list-style-type: none"> <li>Blank - no IO, blank bezel (FACTORY DEFAULT)</li> <li>2nd Gigabit RJ-45 + 2nd RS-232</li> <li>2nd Gigabit RJ-45 + VGA OUT</li> <li>2nd Gigabit RJ-45 + DisplayPort Out (full-size)</li> </ul>
SIM card reader	One micro SIM card reader

## Audio

**Table 10. Audio specifications**

Controller	ALC3254
Type	Mono-channel
Speakers	One
Interface	<ul style="list-style-type: none"> <li>Universal Stereo headset/mic combo</li> <li>Rugged quality speakers</li> <li>Noise reducing array microphones</li> </ul>
Internal speaker amplifier	2 W (RMS)

## Display

**Table 11. Display specifications**

Type	Full HD Touch/Non-Touch
Screen size (Diagonal)	14 inch (16:9)
LCD Panel technology	FHD (1920x1080)
Display	Non Touch / Touch (10 finger PCAP Glove/Water/Stylus capable)
Native Resolution	1920x1080
High Definition	Yes
Luminance	Standard Brightness (SB):220 NIT / Outdoor Viewable(OV) :1000 NIT

Height	173.95 mm / 6.85 (display area)
Width	309.4 mm / 12.18 inch
Megapixels	2.07
Pixels Per Inch (PPI)	157
Pixel pitch	0.161 mm
Color depth	16.2M colors (OV) / 262K (SB)
Contrast ratio (typical)	1500 (OV) / 700 (SB)
Response time(max)	35 ms
Refresh rate	60 Hhz
Horizontal viewing angle	85/85°
Vertical viewing angle	85/85°
Stylus support	Yes, Passive

## Graphics Specifications

**Table 12. Graphics specifications**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel HD 620 Graphics	UMA	Intel Core i3 - 7130U	Integrated	Shared system memory	HDMI 2.0	4096×2304 @60 Hz
Intel UHD 620 Graphics	UMA	Intel Core i5 - 8350U	Integrated	Shared system memory	HDMI 2.0	4096×2304 @60 Hz
Intel HD 520 Graphics	UMA	Intel Core i5-6300U	Integrated	Shared system memory	HDMI 2.0	4096×2304 @60 Hz
AMD Radeon 540	Discrete	Intel Core i5 - 8350U Intel Core i7 - 8650U	Discrete	Dedicated, 2 GB DDR5	HDMI 2.0  Additional video ports via Rear Configurable IO Space  <ul style="list-style-type: none"> <li>· VGA</li> <li>· DisplayPort</li> </ul>	4096×2304 @60 Hz
AMD Radeon RX540	Discrete	Intel Core i5 - 8350U Intel Core i7 - 8650U	Discrete	Dedicated, 4 GB DDR5	HDMI 2.0  Additional video ports via Rear Configurable IO Space  <ul style="list-style-type: none"> <li>· VGA</li> <li>· DisplayPort</li> </ul>	4096×2304 @60 Hz

**NOTE:** Additional video ports via Rear Configurable IO Space is available with discrete graphics solution only.



# Camera

**Table 13. Camera specifications**

Resolution	Camera: <ul style="list-style-type: none"><li>• Still image: 0.92 megapixels</li><li>• Video: 1280x720 at 30 fps</li></ul> Infrared camera (optional): <ul style="list-style-type: none"><li>• Still image: 0.30 megapixels</li><li>• Video: 340x340 at 60 fps</li></ul>
Diagonal viewing angle	<ul style="list-style-type: none"><li>• Camera - 86.7 degrees</li><li>• Infrared camera - 70 degrees</li></ul>

# Communication

**Table 14. Communication specifications**

<b>Network Adapter</b>	<b>Specifications</b>
Ethernet	Integrated Intel i219LM 10/100/1000 Mb/s Ethernet (RJ-45 ) with Intel Remote Wake UP, PXE and Jumbo frames support. (2nd NIC in rear configurable IO space)
Wireless LAN(Optional)	<ul style="list-style-type: none"><li>• Intel Dual Band Wireless AC 8265 (802.11ac) 2x2 + Bluetooth 4.2</li><li>• Intel Dual Band Wireless AC 8265 (802.11ac) 2x2 (No BT)</li><li>• Dell Wireless 1820 - 802.11a/b/g/n/ac Dual Band (2x2) WiFi + Bluetooth 4.2</li></ul>
Wireless WAN(Optional)	Qualcomm Snapdragon X20 Global Gigabit LTE
Global Positioning System(GPS) Module (Optional)	U-blox NEO-M8 dedicated GPS card

# Smart card reader

**Table 15. Contactless smart card reader**

Type	FIPS 201 Contacted / Contactless Smart Card reader
ISO certification	ISO14443A

# Keyboard

**Table 16. Keyboard specifications**

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Number of keys	<ul style="list-style-type: none"><li>• 83 keys: US English, Thai, French-Canadian, Korean, Russian, Hebrew, English-International</li><li>• 84 keys: UK English, French Canadian Quebec, German, French, Spanish (Latin America), Nordic, Arabic, Canada Bilingual</li><li>• 85 keys: Brazilian Portuguese</li><li>• 87 keys: Japanese</li></ul>
Size	Six row keyboard <ul style="list-style-type: none"><li>• X= 19.05 mm key pitch</li><li>• Y= 19.05 mm key pitch</li></ul>
Backlit keyboard	None / RGB Backlight / Rubberized Sealed
Layout	QWERTY / AZERTY / Kanji

# Touchpad

**Table 17. Touchpad Specifications**

---

Resolution	<ul style="list-style-type: none"><li>• Horizontal: 305</li><li>• Vertical: 305</li></ul>
Dimensions	<ul style="list-style-type: none"><li>• Width: 4.13 inch (105 mm )</li><li>• Height: 2.36 inch (60 mm)</li></ul>
Multi-touch	Supports four - fingers multi-touch

# Battery

**Table 18. Battery Specifications**

---

Type	<ul style="list-style-type: none"><li>• 3-cell 51 Whr (ExpressCharge)</li><li>• 3-cell 51 Whr (Long-Life Cycle, includes 3 year limited warranty)</li></ul>
Dimension	<ul style="list-style-type: none"><li>• Length: 128.4 mm (5.05 inch)</li><li>• Width: 86.3 mm (3.39 inch)</li><li>• Height: 15.3 mm (0.60 inch)</li></ul>
Weight (maximum)	237.00 g (0.52 lb)

Voltage	51 WHr - 11.4 VDC
Life Span	300 discharge/recharge cycles
Charging time when the computer is off (approximate)	2 hours(with one battery) / 4 hours (with two batteries)
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Temperature range: Operating	0°C to 60°C (32°F to 140°F)
Temperature range: Non-Operating	-40°C to 70°C (104°F to 158°F)
Coin-Cell battery	3 V, CR2032, lithium ion

## Power adapter

**Table 19. Power adapter specifications**

Type	<ul style="list-style-type: none"> <li>19.5 V @ 130 W &amp; 90 W adapters through 7.4 mm Normal and Elbow Barrel</li> <li>USB Type-C with PD (Power Distribution)</li> <li>Via Dock supporting a NVDC charger architecture</li> </ul>
Input Voltage	100 VAC to 240 VAC
Input current (maximum)	<ul style="list-style-type: none"> <li>90 W - 1.5 A</li> <li>130 W - 2.5 A</li> </ul>
Adapter size	7.4 mm
Input frequency	50 Hz to 60 Hz
Output current	<ul style="list-style-type: none"> <li>90 W - 4.62 A (continuous)</li> <li>130 W - 6.7 A (continuous)</li> </ul>
Rated output voltage	19.5 VDC
Temperature range (Operating)	0°C to 40°C (32°F to 104°F)
Temperature range (Non-Operating)	- 40°C to 70°C (104°F to 158° F)

## Physical system dimensions

**Table 20. Weight**

<b>Chassis weight (pounds / kilograms)</b>	4.9 / 2.2 (without handle and bumpers)
--------------------------------------------	----------------------------------------

**Table 21. Chassis dimensions**

Dimensions	Vectors
Height (inches / centimeters)	13.67 / 34.70
Width (inches / centimeters)	9.56 / 24.30
Depth (inches / centimeters)	1.29 / 3.28
Shipping weight (pounds / kilograms - includes packaging material)	7.5 / 3.40



**Table 22. Packaging parameters**

Dimensions	Vectors
Height (inches / centimeters)	44.5 / 17.52
Width (inches / centimeters)	8.2 / 3.2
Depth (inches / centimeters)	34.1 / 13.42

## Computer environment

**Airborne contaminant level:** G1 as defined by ISA-S71.04-1985

**Table 23. Computer environment**

	Operating	Storage
Temperature range	-29°C to 60°C (-20.2°F to 140°F)	-51°C to 71°C (-59.8°F to 159.8°F)
Relative humidity (maximum)	10% to 80% (non-condensing)  <b>NOTE: Maximum dew point temperature = 26°C</b>	10% to 95% (non-condensing)  <b>NOTE: Maximum dew point temperature = 33°C</b>
Vibration (maximum)	0.26 GRMS	1.37 GRMS
Shock (maximum)	105 G †	40 G ‡
Altitude (maximum)	-15.2 m to 3048 m (-50 ft to 10,000 ft)	-15.2 m to 10,668 m (-50 ft to 35,000 ft)

\* Measured using a random vibration spectrum that simulates user environment.

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

# Regulatory and Environmental Compliance

**Table 24. Regulatory and Environmental Compliance specifications**

- Energy Star Version 7<sup>†</sup>
- EPEAT Silver Registered\*
- TAA configurations available
- MIL 810G

\* : For specific country participation and rating, please see <https://ww2.epeat.net/>

<sup>†</sup> : Available on select configurations offered with single hard drive with both UMA and Discrete chipset.

## Operating system

**Table 25. Operating system**

**Operating System Supported**

- Windows 10 Professional (64 bit)
- Windows Enterprise (64 bit)
- Windows 7 via Dell CFI <sup>†</sup>

**NOTE:** <sup>†</sup> Supported on Intel Dual-Core i5-6300U SkyLake processor only.

## Hardware and Software Security

**Table 26. Hardware Security**

**Hardware Security**

TPM 2.0 FIPS 140-2 Certified, TCG Certified*	Yes,
* TCG certification (February 2018)	Discrete TPM 2.0 IC ( Backward downgradable to 1.2)
BIOS disable TPM (China/Russia)	Yes
Optional Control Vault 2.0 Advanced Authentication with FIPS 140-2 level 3 certification (HW authentication configurations)	Yes, TCG Certified (February 2018)
Optional hardware authentication bundle 2:	Yes
<ul style="list-style-type: none"> <li>• FIPS 201 contacted smart card</li> <li>• Control Vault 2.0</li> </ul>	
Optional hardware authentication bundle 4:	Yes
<ul style="list-style-type: none"> <li>• Touch finger print reader</li> <li>• FIPS 201 contacted smart card</li> <li>• Contactless smart card</li> <li>• NFC</li> </ul>	<ul style="list-style-type: none"> <li>• Synaptics Fingerprint reader</li> <li>• Synaptics Smart Card Reader + Contactless Smart Card</li> </ul>

## Hardware Security

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· Control Vault 2.0	
Security lock slot (Kensington T-Bar Lock Slot)	Yes
SED (Opal 2.0 - SATA Interface)	Yes
Statement of Non-Volatility	Yes
Bundle 6 Control Vault 2 and touch fingerprint	Yes
POA: Power On Authentication	Yes(Supported with Fingerprint reader only)

**Table 27. Software Security**

### Software security

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Latitude Security software per software functional plan/cycle list	Yes
D-Pedigree for BIOS (Secure Supply Chain Functionality) provides:	Yes
· Secure Supply Chain for a Product covers BIOS Image Integrity	
· Chain of Custody	
· Part Traceability	

# System setup

**CAUTION:** Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

**NOTE:** Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Topics:

- [Boot menu](#)
- [Navigation keys](#)
- [System setup options](#)
- [Boot Sequence](#)
- [Updating the BIOS in Windows](#)
- [System and setup password](#)

## Boot menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.


The options are:

- UEFI Boot:
  - Windows Boot Manager
- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings


## Navigation keys

**NOTE:** For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.

Keys	Navigation
Up arrow	Moves to the previous field.

Keys	Navigation
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.
	 <b>NOTE: For the standard graphics browser only.</b>
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

## System setup options

 **NOTE:** Depending on the and its installed devices, the items listed in this section may or may not appear.

## General options

Table 28. General

Option	Description
<b>System Information</b>	<p>This section lists the primary hardware features of your computer.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>System Information</b></li> <li>• <b>Memory Configuration</b></li> <li>• <b>Processor Information</b></li> <li>• <b>Device Information</b></li> </ul>
<b>Battery Information</b>	<p>Displays the battery status and the type of AC adapter connected to the computer.</p>
<b>Boot Sequence</b>	<p>Allows you to change the order in which the computer attempts to find an operating system.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Windows Boot Manager</b></li> <li>• <b>Boot List Option:</b> Allows you to change the boot list options.</li> </ul> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>– <b>Legacy External Devices</b></li> <li>– <b>UEFI</b>—Default</li> </ul>
<b>Advanced Boot Options</b>	<p>Allows you to Enable Legacy Option ROMs.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable Legacy Option ROMs</b>—Default</li> <li>• <b>Enable Attempt Legacy Boot</b></li> </ul>



Option	Description
UEFI Boot Path Security	<p>Allows you to control whether the system prompts the user to enter the Admin password when booting to a UEFI boot path.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Always, Except Internal HDD</b>—Default</li> <li>• <b>Always</b></li> <li>• <b>Never</b></li> </ul>
Date/Time	<p>Allows you to set the date and time. The change to the system date and time takes effect immediately.</p>

## System configuration

Table 29. System Configuration

Option	Description
Integrated NIC	<p>Allows you to configure the integrated network controller.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Enabled</b></li> <li>• <b>Enabled w/PXE</b>—Default</li> </ul>
Onboard Unmanaged NIC	<p>Allows you to enable / disable onboard USB LAN controller.</p>
Serial Port 1	<p>Allows you to configure(disable and re-mapping) the serial port(s).</p>
Serial Port 2	<p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Com1</b>—Default (Port is configured with 3F8h with IRQ 4)</li> <li>• <b>Com3</b> (Port is configured with 3E8h with IRQ 4)</li> </ul> <p><b>NOTE: Serial Port 2 is available when the system has Serial Port in the rear configurable I/O space.</b></p>
SATA Operation	<p>Allows you to configure the operating mode of the integrated SATA hard-drive controller.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>AHCI</b></li> <li>• <b>RAID On</b>—Default</li> </ul> <p><b>NOTE: SATA is configured to support RAID mode.</b></p>
SMART Reporting	<p>This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the S.M.A.R.T (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.</p> <ul style="list-style-type: none"> <li>• <b>Enable SMART Reporting</b></li> </ul>

Option	Description
<b>USB Configuration</b>	<p>Allows you to enable or disable the internal/integrated USB configuration.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable USB Boot Support</b></li> <li>• <b>Enable External USB Ports</b></li> <li>• <b>Disable Docking Station Devices except video (Default : Unchecked)</b></li> </ul> <p>Rest all the options are set by default.</p> <p><b>NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</b></p>
<b>USB PowerShare</b>	<p>This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port (disabled by default).</p> <ul style="list-style-type: none"> <li>• <b>Enable USB PowerShare</b></li> </ul>
<b>Audio</b>	<p>Allows you to enable or disable the integrated audio controller. By default, the <b>Enable Audio</b> option is selected.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable Microphone</b></li> <li>• <b>Enable Internal Speaker</b></li> </ul> <p>This option is set by default.</p>
<b>Keyboard Illumination</b>	<p>This option lets you choose the operating mode of the keyboard illumination feature</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>25%</b></li> <li>• <b>50%</b></li> <li>• <b>75%</b></li> <li>• <b>100%</b></li> </ul>
<b>Keyboard Backlight Timeout on AC</b>	<p>Allows to define the timeout value for the keyboard backlight when an AC adapter is plugged in the system. The Keyboard Backlight timeout value is only in effect when the backlight is enabled.</p> <ul style="list-style-type: none"> <li>• <b>5 seconds</b></li> <li>• <b>10 seconds</b>—Default</li> <li>• <b>15 seconds</b></li> <li>• <b>30 seconds</b></li> <li>• <b>1 minute</b></li> <li>• <b>5 minutes</b></li> <li>• <b>15 minutes</b></li> <li>• <b>Never</b></li> </ul>
<b>Keyboard Backlight Timeout on Battery</b>	<p>Allows to define the timeout value for the keyboard backlight when the system is running only on battery power. The Keyboard</p>

Option	Description
<b>RGB Keyboard Backlight</b>	<p>Backlight timeout value is only in effect when the backlight is enabled.</p> <ul style="list-style-type: none"> <li>· <b>5 seconds</b></li> <li>· <b>10 seconds</b>—Default</li> <li>· <b>15 seconds</b></li> <li>· <b>30 seconds</b></li> <li>· <b>1 minute</b></li> <li>· <b>5 minutes</b></li> <li>· <b>15 minutes</b></li> <li>· <b>Never</b></li> </ul> <p>This option allows to enable / select backlight color or configure RGB intensity values to activate two custom backlight colors.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>· <b>White</b></li> <li>· <b>Red</b></li> <li>· <b>Green</b></li> <li>· <b>Blue</b></li> <li>· <b>Custom1</b></li> <li>· <b>Custom2</b></li> </ul>
<b>Touchscreen</b>	<p>This option controls whether the touchscreen is enabled or disabled</p>
<b>Stealth mode Control</b>	<p>This option allows configuration of Dell Stealth mode feature.</p> <p><b>Configurable control features:</b></p> <ul style="list-style-type: none"> <li>· <b>Onboard LEDs</b></li> <li>· <b>LCD screen</b></li> <li>· <b>Speakers</b></li> <li>· <b>Fans</b></li> <li>· <b>Radio</b></li> <li>· <b>GPS receiver</b></li> <li>· <b>WLAN radio</b></li> <li>· <b>WWAN radio.</b></li> </ul>
<b>Miscellaneous devices</b>	<p>Allows you to enable or disable various on board devices.</p> <ul style="list-style-type: none"> <li>· <b>Enable PC Card</b></li> <li>· <b>Enable Camera</b>—Default</li> <li>· <b>Enable Hard Drive Free Fall Protection</b></li> <li>· <b>Enable Dedicated GPS Radio</b></li> <li>· <b>Enable Secure Digital (SD) Card</b></li> <li>· <b>Secure Digital (SD) Card Boot</b> - Disabled</li> <li>· <b>Secure Digital Card (SD) Read-Only Mode</b> - Disabled</li> <li>· <b>Enable Rugged Dock NIC PXE Support</b> - Disabled</li> </ul>

# Video screen options

Table 30. Video


Option	Description
LCD Brightness	Allows you to set the display brightness depending upon the power source. On Battery(50% is default) and On AC (100 % default).

## Security

Table 31. Security

Option	Description
Admin Password	<p>Allows you to set, change, or delete the administrator(admin) password.</p> <p>The entries to set password are:</p> <ul style="list-style-type: none"><li>• <b>Enter the old password:</b></li><li>• <b>Enter the new password:</b></li><li>• <b>Confirm new password:</b></li></ul> <p>Click <b>OK</b> once you set the password.</p> <p><b>NOTE:</b> For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.</p>
System Password	<p>Allows you to set, change, or delete the System password.</p> <p>The entries to set password are:</p> <ul style="list-style-type: none"><li>• <b>Enter the old password:</b></li><li>• <b>Enter the new password:</b></li><li>• <b>Confirm new password:</b></li></ul> <p>Click <b>OK</b> once you set the password.</p> <p><b>NOTE:</b> For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.</p>
Strong Password	<p>Allows you to enforce the option to always set strong password.</p> <ul style="list-style-type: none"><li>• <b>Enable Strong Password</b></li></ul> <p>This option is not set by default.</p>
Password Configuration	<p>You can define the length of your password. Min = 4, Max = 32</p>
Password Bypass	<p>Allows you to bypass the System password and the Internal HDD password, when it is set, during a system restart.</p> <p>Click one of the options:</p> <ul style="list-style-type: none"><li>• <b>Disabled</b>—Default</li></ul>

Option	Description
<b>Password Change</b>	<ul style="list-style-type: none"> <li>• <b>Reboot bypass</b></li> </ul> <p>Allows you to change the System password when the administrator password is set.</p> <ul style="list-style-type: none"> <li>• <b>Allow Non-Admin Password Changes</b></li> </ul> <p>This option is set by default.</p>
<b>Non-Admin Setup Changes</b>	<p>Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password.</p> <ul style="list-style-type: none"> <li>• <b>Allow Wireless Switch Changes</b></li> </ul> <p>This option is not set by default.</p>
<b>UEFI Capsule Firmware Updates</b>	<p>Allows you to update the system BIOS via UEFI capsule update packages.</p> <ul style="list-style-type: none"> <li>• <b>Enable UEFI Capsule Firmware Updates</b></li> </ul> <p>This option is set by default.</p>
<b>TPM 2.0 Security</b>	<p>Allows you to enable or disable the Trusted Platform Module (TPM) during POST.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>TPM On</b>—Default</li> <li>• <b>Clear</b></li> <li>• <b>PPI Bypass for Enable Command</b>—Default</li> <li>• <b>PPI Bypass for Disable Command</b></li> <li>• <b>PPI Bypass for Clear Command</b></li> <li>• <b>Attestation Enable</b>—Default</li> <li>• <b>Key Storage Enable</b>—Default</li> <li>• <b>SHA-256</b>—Default</li> </ul>
<b>Computrace (R)</b>	<p>Allows you to activate or disable the optional Computrace software.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Deactivate</b></li> <li>• <b>Disable</b></li> <li>• <b>Activate</b>—Default</li> </ul>
<b>OROM keyboard Access</b>	<p>Allows you to enable or disable Option ROM configuration screens via hotkeys during boot.</p> <ul style="list-style-type: none"> <li>• <b>Enable</b>—Default</li> <li>• <b>Disable</b></li> <li>• <b>One Time Enable</b></li> </ul>
<b>Admin Setup Lockout</b>	<p>Allows you to prevent users from entering Setup when an administrator password is set.</p> <ul style="list-style-type: none"> <li>• <b>Enable Admin Setup Lockout</b></li> </ul> <p>This option is not set by default.</p>
<b>Master Password Lockout</b>	<p>Allows you to disable master password support.</p> <ul style="list-style-type: none"> <li>• <b>Enable Master Password Lockout</b></li> </ul> <p>This option is not set by default.</p>

Option	Description
	<p>   <b>NOTE:</b> Hard Disk password should be cleared before the settings can be changed.</p>
<b>SMM Security Mitigation</b>	<p>Allows you to enable or disable additional UEFI SMM Security Mitigation protection.</p> <ul style="list-style-type: none"> <li>• <b>SMM Security Mitigation</b></li> </ul> <p>This option is not set by default.</p>

## Secure boot

Table 32. Secure Boot

Option	Description
<b>Secure Boot Enable</b>	<p>Allows you to enable or disable the Secure Boot Feature.</p> <ul style="list-style-type: none"> <li>• <b>Secure Boot Enable</b>—Default</li> </ul>
<b>Secure Boot Mode</b>	<p>Changes to the Secure Boot operation mode modifies the behaviour of Secure Boot to allow evaluation of UEFI driver signatures.</p> <p>Choose one of the option:</p> <ul style="list-style-type: none"> <li>• <b>Deployed Mode</b>—Default</li> <li>• <b>Audit Mode</b></li> </ul>
<b>Expert Key Management</b>	<p>Allows you to enable or disable Expert Key Management.</p> <ul style="list-style-type: none"> <li>• <b>Enable Custom Mode</b></li> </ul> <p>This option is not set by default.</p> <p>The Custom Mode Key Management options are:</p> <ul style="list-style-type: none"> <li>• <b>PK</b>—Default</li> <li>• <b>KEK</b></li> <li>• <b>db</b></li> <li>• <b>dbx</b></li> </ul>

## Intel Software Guard Extensions options

Table 33. Intel Software Guard Extensions

Option	Description
<b>Intel SGX Enable</b>	<p>This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Enabled</b></li> </ul>

Option	Description
<b>Enclave Memory Size</b>	<ul style="list-style-type: none"> <li>• <b>Software controlled</b>—Default</li> </ul> <p>This option sets <b>SGX Enclave Reserve Memory Size</b></p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>32 MB</b></li> <li>• <b>64 MB</b></li> <li>• <b>128 MB</b>—Default</li> </ul>

## Performance

Table 34. Performance


Option	Description
<b>Multi Core Support</b>	<p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"> <li>• <b>All</b>—Default</li> <li>• <b>1</b></li> <li>• <b>2</b></li> <li>• <b>3</b></li> </ul>
<b>Intel SpeedStep</b>	<p>Allows you to enable or disable the Intel SpeedStep mode of processor.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel SpeedStep</b></li> </ul> <p>This option is set by default.</p>
<b>C-States Control</b>	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> <li>• <b>C states</b></li> </ul> <p>This option is set by default.</p>
<b>Intel TurboBoost</b>	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel TurboBoost</b></li> </ul> <p>This option is set by default.</p>
<b>Hyper-Thread Control</b>	<p>Allows you to enable or disable the HyperThreading in the processor.</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Enabled</b>—Default</li> </ul>

# Power management

Table 35. Power Management

Option	Description
<b>Lid Switch</b>	Allows you to enable or disable the lid switch from automatically turning on / off the screen when the lid is closed.
<b>AC Behavior</b>	<p>Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected.</p> <ul style="list-style-type: none"><li>• <b>Wake on AC</b></li></ul> <p>This option is not set by default.</p>
<b>Auto On Time</b>	<p>Allows you to set the time at which the computer must turn on automatically.</p> <p>The options are:</p> <ul style="list-style-type: none"><li>• <b>Disabled</b>—Default</li><li>• <b>Every Day</b></li><li>• <b>Weekdays</b></li><li>• <b>Select Days</b></li></ul> <p>This option is not set by default.</p>
<b>USB Wake Support</b>	<p>Allows you to enable USB devices to wake the system from standby.</p> <ul style="list-style-type: none"><li>• <b>Enable USB Wake Support</b></li><li>• <b>Wake on Dell USB-C Dock</b></li></ul> <p>This option is not set by default.</p>
<b>Wireless Radio Control</b>	<p>This option if enabled, will sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN and/or WWAN). Upon disconnection from the wired network the selected wireless radio will be enabled.</p> <ul style="list-style-type: none"><li>• <b>Control WLAN radio</b></li><li>• <b>Control WWAN radio</b></li></ul> <p>This option is not set by default.</p>
<b>Wake on LAN</b>	<p>This option allows the computer to power up from the off state when triggered by a special LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC power supply.</p> <ul style="list-style-type: none"><li>• <b>Disabled</b>—Default - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN.</li><li>• <b>LAN Only</b> - Allows the system to be powered on by special LAN signals.</li><li>• <b>WLAN Only</b> - Allows the system to be powered on by special WLAN signals.</li><li>• <b>LAN or WLAN</b> - Allows the system to be powered on by special LAN or WLAN signals.</li></ul>
<b>Peak Shift</b>	<p>Allows you enable or disable the Peak shift feature. This feature when enabled minimizes the AC power usage at times of peak demand. Battery does not charge between the Peak Shift start and end time</p> <p>Peak Shift Start and End Time can be configured for all weekdays</p> <p>This option set the battery threshold value (15 % to 100 %)</p>



Option	Description
<b>Advanced Battery Charge Configuration</b>	<p>This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non-work hours to improve the battery health.</p> <p>Advanced Battery Charge Mode can be configured for all weekdays</p>
<b>Battery #1 Charge Configuration</b>	<p>Allows you to select the charging mode for the battery.</p>
<b>Battery #2 Charge Configuration</b>	<p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Adaptive</b>—Default</li> <li>• <b>Standard</b> - Fully charges your battery at a standard rate.</li> <li>• <b>ExpressCharge</b>- The battery charges over a shorter period of time using Dell's fast charging technology.</li> <li>• <b>Primarily AC use</b></li> <li>• <b>Custom</b></li> </ul> <p>If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.</p> <p> <b>NOTE: All charging mode may not be available for all the batteries.</b></p>
<b>Type-C connector Power</b>	<p>This option allows you to set maximum power that can be drawn from the Type-C connector.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>7.5 Watts</b>—Default</li> <li>• <b>15 Watts</b></li> </ul>
<b>Power Usage Mode</b>	<p>This field lets you choose the system power usage mode.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Power Saver</b></li> <li>• <b>Balanced</b> — Default.</li> <li>• <b>High Performance</b></li> </ul>

## Post behavior

Table 36. POST Behavior

Option	Description
<b>Adapter Warnings</b>	<p>Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters.</p> <ul style="list-style-type: none"> <li>• <b>Enable Adapter Warnings</b>—Default</li> </ul>
<b>Keypad (Embedded)</b>	<p>Allows you to one of the two methods to enable the keypad that is embedded in the internal keyboard.</p> <ul style="list-style-type: none"> <li>• <b>Fn Key Only</b> : The keypad is only enabled when you hold down the Fn key (Default)</li> <li>• <b>By Num Lock</b> : The keypad is enabled only when the NumLock LED is on.</li> </ul>
<b>Numlock Enable</b>	<p>Allows you to enable or disable the Numlock function when the system boots.</p> <ul style="list-style-type: none"> <li>• <b>Enable Numlock</b>—Default</li> </ul>

Option	Description
<b>Fn Lock Options</b>	<p>Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys.</p> <ul style="list-style-type: none"> <li>• <b>Fn Lock</b>—Default</li> </ul> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Lock Mode Disable/Standard</b></li> <li>• <b>Lock Mode Enable/Secondary</b>—Default</li> </ul>
<b>Fastboot</b>	<p>Allows you to speed up the boot process by bypassing some of the compatibility steps.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Minimal</b>—Default</li> <li>• <b>Thorough</b></li> <li>• <b>Auto</b></li> </ul>
<b>Extended BIOS POST Time</b>	<p>Allows you to create an additional preboot delay.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>0 seconds</b>—Default</li> <li>• <b>5 seconds</b></li> <li>• <b>10 seconds</b></li> </ul>
<b>Full Screen Logo</b>	<p>Allows you to display full screen logo, if your image matches screen resolution.</p> <ul style="list-style-type: none"> <li>• <b>Enable Full Screen Logo</b></li> </ul> <p>This option is not set by default.</p>
<b>Warnings and Errors</b>	<p>Allows you to select different options to either stop, prompt and wait for user input, continue when warnings are detected but pause on errors, or continue when either warnings or errors are detected during the POST process.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Prompt on Warnings and Errors</b>—Default</li> <li>• <b>Continue on Warnings</b></li> <li>• <b>Continue on Warnings and Errors</b></li> </ul>
<b>MAC Address Pass-Through</b>	<p>This feature replaces the external NIC MAC address (in a supported dock or dongle) with selected MAC address from the system.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Passthrough MAC Address</b>—Default</li> <li>• <b>Integrated NIC 1 MAC Address</b></li> <li>• <b>Disabled</b></li> </ul>


# Manageability

Table 37. Manageability

Option	Description
USB Provision	This option lets you to provision Intel AMT using provisioning file stored on local USB storage
MEBx Hotkey	This option allows you to enable or disable hotkey (Ctrl +P) functionality at Dell logo to enter Management Engine BIOS Extension (MEBx)

# Virtualization support

Table 38. Virtualization Support

Option	Description
Virtualization	<p>This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by the Intel Virtualization technology.</p> <ul style="list-style-type: none"><li>• <b>Enable Intel Virtualization Technology</b></li></ul> <p>This option is set by default.</p>
VT for Direct I/O	<p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by the Intel Virtualization technology for direct I/O.</p> <ul style="list-style-type: none"><li>• <b>Enable VT for Direct I/O</b></li></ul> <p>This option is set by default.</p>
Trusted Execution	<p>This option allows Measured Virtual Machine Monitor (MVMM) to use additional hardware capabilities provisioned by Intel Trusted Execution Technology</p> <ul style="list-style-type: none"><li>• <b>Enable Trusted Execution</b></li></ul> <p> <b>NOTE:</b> The Intel Virtualization Technology, VT for direct I/O and TPM has to be enabled and activated for this feature to work.</p>

# Wireless options


Table 39. Wireless

Option	Description
Wireless Switch	<p>Allows to set the wireless devices that can be controlled by the wireless switch.</p> <p>The options are:</p> <ul style="list-style-type: none"><li>• <b>WWAN</b></li><li>• <b>GPS (on WWAN Module)</b></li><li>• <b>WLAN</b></li></ul>

Option	Description
	<ul style="list-style-type: none"> <li>• <b>Bluetooth</b></li> </ul> <p>All the options are enabled by default.</p>
<b>Wireless Device Enable</b>	<p>Allows you to enable or disable the internal wireless devices.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>WWAN/GPS</b></li> <li>• <b>WLAN</b></li> <li>• <b>Bluetooth</b></li> </ul> <p>All the options are enabled by default.</p>

## Maintenance

Table 40. Maintenance

Option	Description
<b>Service Tag</b>	Displays the service tag of your computer.
<b>Asset Tag</b>	<p>Allows you to create a system asset tag if an asset tag is not already set.</p> <p>This option is not set by default.</p>
<b>BIOS Downgrade</b>	<p>Allows you to flash previous revisions of the system firmware.</p> <ul style="list-style-type: none"> <li>• <b>Allow BIOS Downgrade</b></li> </ul> <p>This option is set by default.</p>
<b>Data Wipe</b>	<p>Allows you to securely erase data from all internal storage devices.</p> <ul style="list-style-type: none"> <li>• <b>Wipe on Next Boot</b></li> </ul> <p>This option is not set by default.</p>
<b>Bios Recovery</b>	<p><b>BIOS Recovery from Hard Drive</b>—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key.</p> <p><b>BIOS Auto-Recovery</b>— Allows you to recover the BIOS automatically.</p> <p>   <b>NOTE: BIOS Recovery from Hard Drive field should be enabled.</b></p> <p><b>Always Perform Integrity Check</b>—Performs integrity check on every boot.</p>

# System logs

Table 41. System Logs

Option	Description
<b>BIOS events</b>	Allows you to view and clear the System Setup (BIOS) POST events.
<b>Thermal Events</b>	Allows you to view and clear the System Setup (Thermal) events.
<b>Power Events</b>	Allows you to view and clear the System Setup (Power) events.

## About

### Licence Information

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## Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive

**i** | **NOTE: XXX denotes the SATA drive number.**

- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

**i** | **NOTE: Choosing Diagnostics, will display the ePSA diagnostics screen.**

The boot sequence screen also displays the option to access the System Setup screen.

## Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available.

**i** | **NOTE: If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re-enabled after the BIOS update is completed.**

- 1 Restart the computer.
- 2 Go to **Dell.com/support**.
  - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
  - Click **Detect Product** and follow the instructions on screen.
- 3 If you are unable to detect or find the Service Tag, click **Choose from all products**.
- 4 Choose the **Products** category from the list.

**i** | **NOTE: Choose the appropriate category to reach the product page**

- 5 Select your computer model and the **Product Support** page of your computer appears.
- 6 Click **Get drivers** and click **Drivers and Downloads**.  
The Drivers and Downloads section opens.
- 7 Click **Find it myself**.
- 8 Click **BIOS** to view the BIOS versions.
- 9 Identify the latest BIOS file and click **Download**.
- 10 Select your preferred download method in the **Please select your download method below** window, click **Download File**.  
The **File Download** window appears.
- 11 Click **Save** to save the file on your computer.
- 12 Click **Run** to install the updated BIOS settings on your computer.  
Follow the instructions on the screen.

# Updating BIOS on systems with BitLocker enabled

**CAUTION:** If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: <https://www.dell.com/support/article/sln153694>

## Updating your system BIOS using a USB flash drive

If the system cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another system and save it to a bootable USB Flash Drive.

**NOTE:** You will need to use a bootable USB Flash drive. Please refer to the following article for further details: <https://www.dell.com/support/article/us/en/19/sln143196/>

- 1 Download the BIOS update .EXE file to another system.
- 2 Copy the file e.g. O9010A12.EXE onto the bootable USB Flash drive.
- 3 Insert the USB Flash drive into the system that requires the BIOS update.
- 4 Restart the system and press F12 when the Dell Splash logo appears to display the One Time Boot Menu.
- 5 Using arrow keys, select **USB Storage Device** and click Return.
- 6 The system will boot to a Diag C:\> prompt.
- 7 Run the file by typing the full filename e.g. O9010A12.exe and press Return.
- 8 The BIOS Update Utility will load, follow the instructions on screen.



Figure 1. DOS BIOS Update Screen

## Updating the Dell BIOS in Linux and Ubuntu environments

If you want to update the system BIOS in a Linux environment such as Ubuntu, see <https://www.dell.com/support/article/us/en/19/sln171755/>.

# System and setup password

Table 42. System and setup password

Password type	Description
System password	Password that you must enter to log on to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

You can create a system password and a setup password to secure your computer.

**⚠ CAUTION:** The password features provide a basic level of security for the data on your computer.

**⚠ CAUTION:** Anyone can access the data stored on your computer if it is not locked and left unattended.

**ℹ NOTE:** System and setup password feature is disabled.

## Assigning a system setup password

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or re-boot.

- 1 In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.  
The **Security** screen is displayed.
- 2 Select **System/Admin Password** and create a password in the **Enter the new password** field.  
Use the following guidelines to assign the system password:
  - A password can have up to 32 characters.
  - The password can contain the numbers 0 through 9.
  - Only lower case letters are valid, upper case letters are not allowed.
  - Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (;), ([], (\), (]), (`).
- 3 Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
- 4 Press Esc and a message prompts you to save the changes.
- 5 Press Y to save the changes.  
The computer reboots.

## Deleting or changing an existing system setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press F2 immediately after a power-on or reboot.

- 1 In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.  
The **System Security** screen is displayed.
- 2 In the **System Security** screen, verify that **Password Status** is **Unlocked**.
- 3 Select **System Password**, alter or delete the existing system password and press Enter or Tab.
- 4 Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

**ℹ NOTE:** If you change the System and/or Setup password, re-enter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.



- 5 Press Esc and a message prompts you to save the changes.
- 6 Press Y to save the changes and exit from System Setup.  
The computer reboot.

# Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

Topics:

- [Operating system](#)
- [Downloading drivers](#)

## Operating system

**Table 43. Operating system**

### Operating System Supported

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- Windows 10 Professional (64 bit)
- Windows Enterprise (64 bit)
- Windows 7 via Dell CFI †

① | **NOTE:** † Supported on Intel Dual-Core i5-6300U SkyLake processor only.

## Downloading drivers

- 1 Turn on the .
- 2 Go to **Dell.com/support**.
- 3 Click **Product Support**, enter the Service Tag of your , and then click **Submit**.

① | **NOTE:** If you do not have the Service Tag, use the auto detect feature or manually browse for your model.

- 4 Click **Drivers and Downloads**.
- 5 Select the operating system installed on your .
- 6 Scroll down the page and select the driver to install.
- 7 Click **Download File** to download the driver for your .
- 8 After the download is complete, navigate to the folder where you saved the driver file.
- 9 Double-click the driver file icon and follow the instructions on the screen.

# Getting help

## Contacting Dell

① **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

- 1 Go to **Dell.com/support**.
- 2 Select your support category.
- 3 Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
- 4 Select the appropriate service or support link based on your need.